

Revised 08/01/95

Underground Water Distribution System Fort Belvoir, Virginia

Leak Detection Survey

19971023 148

CONTRACT #DACA01-94-D-0034
SYSTEMS CORP PROJECT #94013.09

August 1, 1995

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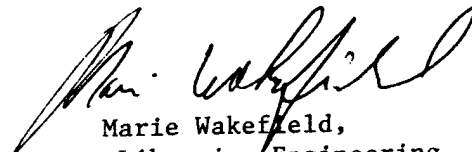


DEPARTMENT OF THE ARMY
CONSTRUCTION ENGINEERING RESEARCH LABORATORIES, CORPS OF ENGINEERS
P.O. BOX 9005
CHAMPAIGN, ILLINOIS 61826-9005

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Marie Wakefield,
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Heath Consultants Incorporated

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1-800-HEATH US (432-8487)
FAX 412-929-4872

July 24, 1995

Mr. Charles Belt
Systemscorp
Cherokee Place, Suite 306
2200 Sutherland Avenue
Knoxville, Tenn. 37919

Dear Mr. Belt;

This is the final report of your recently completed Heath Consultants Leakage Detection Survey. The survey was conducted by myself, Donald Muir, Operations Coordinator, and required 12.25 working days. This was not a survey of the entire water distribution system but instead a survey of water mains 8 inch and larger. A total of 31 leaks were detected with an estimated loss of 243 gallons per minute. This would result in a loss of 349,920 gallons per day and a loss of 127,720,800 gallons per year.

The Heath Aqua-Scope was used to perform the survey. The Aqua-Scope is an electro-sonic amplification device capable of detecting leakage as small as 10 gallons per hour. The Aqua-Scope consists of a headset worn by the operator, a direct contact microphone, a ground microphone, and a control console with a volume control and an on/off switch. In addition, a computerized leak correlator was used to pinpoint the location of several leaks.

As with most water systems, the majority of leaks detected were small leaks. 20 of the 31 leaks were either leaking fire hydrants or leaking main valves. Only 1 service line was found leaking. This was a yard hydrant outside of an airplane hanger at the airfield. The small number of service line leaks can be contributed to the fact that the majority of buildings are supplied by mains that are less than 8 inch in diameter and therefore were not part of the leakage detection survey. The remaining 10 leaks were leaks found on the mains themselves. These 10 leaks were responsible for 76% of the total water loss.

It is impossible to stop water system leakage entirely. Proper preventative maintenance of the distribution system and an ongoing leakage detection and repair program can keep leakage to a minimum. Very few water leaks actually appear above ground. The majority of

Northeast Region
306 E. Main Street
P.O. Box 511
Norton, MA 02766
508-285-9891
FAX 508-285-2778

Southeast Region
135 Space Park Drive
P.O. Box 110075
Nashville, TN 37222
615-833-1579
FAX 615-833-2803

Central Southwest Region
9030 Monroe Road
P.O. Box 75130
Houston, TX 77234
713-946-7664
FAX 713-946-9000

Midwest Region
1655 S. Memorial Drive
P.O. Box 546
New Castle, IN 47362
317-521-2068
FAX 317-521-2000

West Region
501-D Harbor Boulevard
P.O. Box 1267
W. Sacramento, CA 95691
916-371-2520
FAX 916-371-2000

Mr. Charles Belt
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leaks find their way into the surrounding rock structure or into nearby utility line ditches and never appear above ground.

Knowing this, some type of leakage detection program is needed. The program can be contracted to an outside firm or performed in-house. Detection equipment can be as sophisticated as an Aqua-Scope and leak correlator or as simple as placing your ear onto a valve key and listening for leakage noise. Leakage detection can be incorporated into routine system maintenance. Listening for the presence of leakage noise on fire hydrants during flushing and listening on valve keys while exercising valves will tell if any leaks are nearby. The key to leakage detection is the number of contact points available onto the water line. Therefore it is necessary that all main line valve and service line valves be located and brought to ground level if buried. What must be remembered though is that any type of leakage detection program is better than no leakage detection program.

Several recommendations can be made to improve the water system at Fort Belvoir. They are as follows:

1. Not all large leaks are on large diameter water mains. A comprehensive survey of the remainder of water system should be undertaken.
2. An ongoing leakage detection program must be initiated. This program can be performed in-house or by an outside firm.
3. A large number of the leaks detected were fire hydrant leaks. These hydrants are very old and ideally need replaced. In lieu of this, repairing the leaking hydrants and verifying that hydrants are completely shut off after flushing will reduce water loss.
4. A water system can not have too many valves. All main line valves and service line valves should be located and if buried, valve boxes should be brought up to ground level.
5. During the survey it was found that water mains are exposed at several creek crossings. These lines need to be buried and/or reinforced to prevent damage due to freezing or damage due to foreign objects striking mains.
6. A large amount of the water main on the post runs through wooded areas. Leakage in these areas can occur for long periods of time before being discovered. These lines need to be located, their location marked, and inspected regularly to insure leakage is not present

Mr. Charles Belt
July 24, 1995
Page 3

7. Individual buildings on base do not have water meters. Leakage inside the buildings needs to be identified and repaired. Leakage inside the buildings is actually more expensive than underground leakage due to the fact that sewage flow is metered.

Heath Consultants was requested by Fort Belvoir personnel to note during the survey any areas that needed maintenance. The following is a list of such areas.

1. Washington Village - The majority of service line curb boxes are filled with stone and need cleaned out
2. Water main is exposed in creek crossing at intersection of Soldier Road and Statesman Road
3. Both 12 inch mains are exposed at the creek crossing north of Building #1494.
4. 12 inch main exposed in woods behind Building #1422.
5. 12 inch main exposed at blow-off at creek crossing in woods behind Youth Services Center .
6. Head for air release valve on 16 inch main at Cheney School not installed.
7. 10 inch main valve box knocked over in woods behind Building #1000.
8. 10 inch main valve boxes northeast of Building #1000 washed out and missing
9. Main valve box near Building # 2604 paved over.
10. Air release valve at intersection of Abbott Road and Forster Road buried.
11. Main valve boxes at intersection of Gorgas Road and Woodlawn Road buried
12. Blow-off valve along Route 1 at Accotink Creek buried.
13. Could not locate 10 inch main valve boxes on north side of Route 1 at Gunston Road
14. Could not locate main valve boxes on west side of Belvoir Road at Farrell Road near DeWitt Hospital

Mr. Charles Belt
July 24, 1995
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Concern was raised as to whether our leakage detection survey was performed in accordance to the AWWA Standard M-36 "Water Audits and Leak Detection." All Heath Consultants surveys are conducted in accordance to the AWWA Standard M-36. In fact, Mr. Tim Brown of Heath Consultants sits on the Advisory Board overseeing Standard M-36.

Very little survey at Fort Belvoir was performed at night. The water mains running along Route 1 were an exception. Several nights were required to survey along Route 1 since survey could only be performed between the hours of 3:00 a.m. and 5:00 a.m. when traffic was its lightest. The majority of water main at Fort Belvoir does not run under paved road. Most of the line runs in the soil off the road on the road shoulder. Once the morning rush of base employees was over, the base was actually a very quiet place to survey.

Noise created by water consumption was not a problem. A large number of the buildings on base are supplied from water mains that are less than 8 inch in diameter and, therefore, was not part of the survey. Buildings supplied by mains that were surveyed in general do use great amounts of water. Buildings such as classrooms and office buildings in general need water only for restrooms and drinking fountains. In addition, noise created by a water line will be constant. This noise will not stop while noise created by consumption will stop and start indicating to the survey consultant that this noise is not a leak.

It has been a pleasure working with SystemsCorp at Fort Belvoir. If you have any questions on this survey or if we can be of any further service, please do not hesitate to contact our Regional Office at 412-929-2300.

Sincerely,

Don Muir Jr., ml.

Don Muir Jr.
Area Operations Coordinator

DM/mh
cc: File



343-SAQ-0003467-12

REFERENCE NUMBER

Summary of
WATER LEAKAGE CONTROL SURVEY
FOR

SYSTEMSCORP/FORT BELVOIR

FORT BELVOIR, VA

COMPANY

CITY AND STATE

DISTRICT OR DIVISION

Conducted by Our Consultant(s) Donald Muir Jr.DATE STARTED 6-21-95 DATE COMPLETED 7-17-95 TOTAL DAYS 12.25

CLASSIFICATION	NUMBER	ESTIMATED LEAKAGE			
		GPM	GPD	GPY	AF/Y
1 15 to +15 gpm	4	160 gpm	230,400 gpd	84,096,000 gpy	
2 5 to 14 gpm	4	35 gpm	50,400 gpd	18,396,000 gpy	
3 1 to 4 gpm	23	48 gpm	69,120 gpd	25,228,800 gpy	
TOTALS	31	243 gpm	349,920 gpd	127,720,800 gpy	

GPM = Gallons/Minute

GPD = Gallons/Day

GPY = Gallons/Year

AF/Y = Acre Feet/Year

SOURCE OF LEAKAGE	NUMBER	GPM	% OF TOTAL NO.	% OF TOTAL EST. GPM
MAINS	10	185 gpm	32.3%	76.1%
SERVICES	1	1 gpm	3.2%	0.4%
VALVES	6	14 gpm	19.4%	5.8%
HYDRANTS	14	43 gpm	45.1%	17.7%
TOTALS	31	243 gpm	100.0%	100.0%

TYPE OF SURVEY PERFORMED Comprehensive Water-8" & largerMILES OF MAIN INSPECTED 32.0 mi.NUMBER OF SERVICES INSPECTED N/A
(If applicable)NUMBER OF LEAK INDICATIONS 31**LEAK INDICATION CLASSIFICATION**

Leak indication classification is not an exact science. In spite of the use of the most modern instruments plus complete training and experience by the consultant, it is impossible to determine the exact condition of underground piping without actually exposing same. In view of this limitation, our classification (including estimated volume loss) is intended as an aid in scheduling repairs based upon the information available, the consultant's judgement, and site conditions at the time the report is prepared. Variable factors beyond our control may alter this classification at any time. Once the leak is exposed for repair, the utility may wish to revise the volume loss estimate, in order to establish a more accurate estimate of actual water loss.

Grade 1 (C) 15 to +15 GPM
Grade 2 (B) 5 to 14 GPM
Grade 3 (A) 1 to 4 GPM

SPECIAL CASES

Contact Heath Consultants Incorporated for further information regarding any Special Case such as: emergency assistance, inspecting river/canal crossings, analysis/audit of in-house leakage programs, third party verification, hands-on training, etc.

Our consultants will be available on a 24-hour notice to assist you.

***POSITIVE STREET
REPORTS***

I N D E X

POSITIVE STREET REPORTS

<u>LOCATION</u>	<u>PAGE NO.</u>	<u>LEAK CLASSIFICATION</u>
Abbot Road @ #2115	26	3
Arnold Rd. south of 9th St.	12	2
Belvoir Rd. behind #1000	10	3
12" main valve at Building #1003	14	3
Building T-1426 @ Fire Hydrant	2	3
Davidson Airfield @ #1351	31	3
Davison Airfield @ Building #1357	30	3
Goethals Rd. @ Beauregard Rd.	23	3
Gunston Rd. @ #S-1147	9	2
Guston Rd. @ #1195 - Fire Hydrant	8	3
Gunston Rd. @ Fifth St.	5	3
Hall Rd. @ Bldg. #1464 - Fire Hydrant	4	3
Hurley Road ! #805	15	3
Iry Road @ #1970	24	3
Iry Rd. @ #1972	25	3
Jackson Loop at Building #1434-Valve	3	3
Jackson Loop @ 1440 - Fire Hydrant	1	3
Lyman Loop @ Fire Hydrant	18	1
Meeres Road @ #1741	13	3
Rossell Loop @ 21st St.	21	3
Spengler Loop @ 21st St.	19	2
Theote Rd. near S-628	28	1
Totten Rd. @ #338	29	3
Third St. east of Gunston Rd.	6	3
Third St. west of Chapek St.	7	3
12th St. @ #1017 (Barden School)	11	3
16th St. @ #740	16	1
16th St. @ Building #193	27	2
16th St. west of Dalrymple St.	17	3
18th St. @ Rear of #130	22	3
21st Street @ Rear of #165	20	1



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

Page No. 1
Date 6-21-95
Ownership Public Private Easement
Leak Indication Classification
I(C) II(B) III(A)
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company SYSTEMCORP / FORT BELVOIR District _____
City ACCOTINK State VA
Nearest Street Address

JACKSON LOOP AT 1440 - FINE HYDRANT

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>3 gpm</u>

LEAKAGE DETECTED AT:

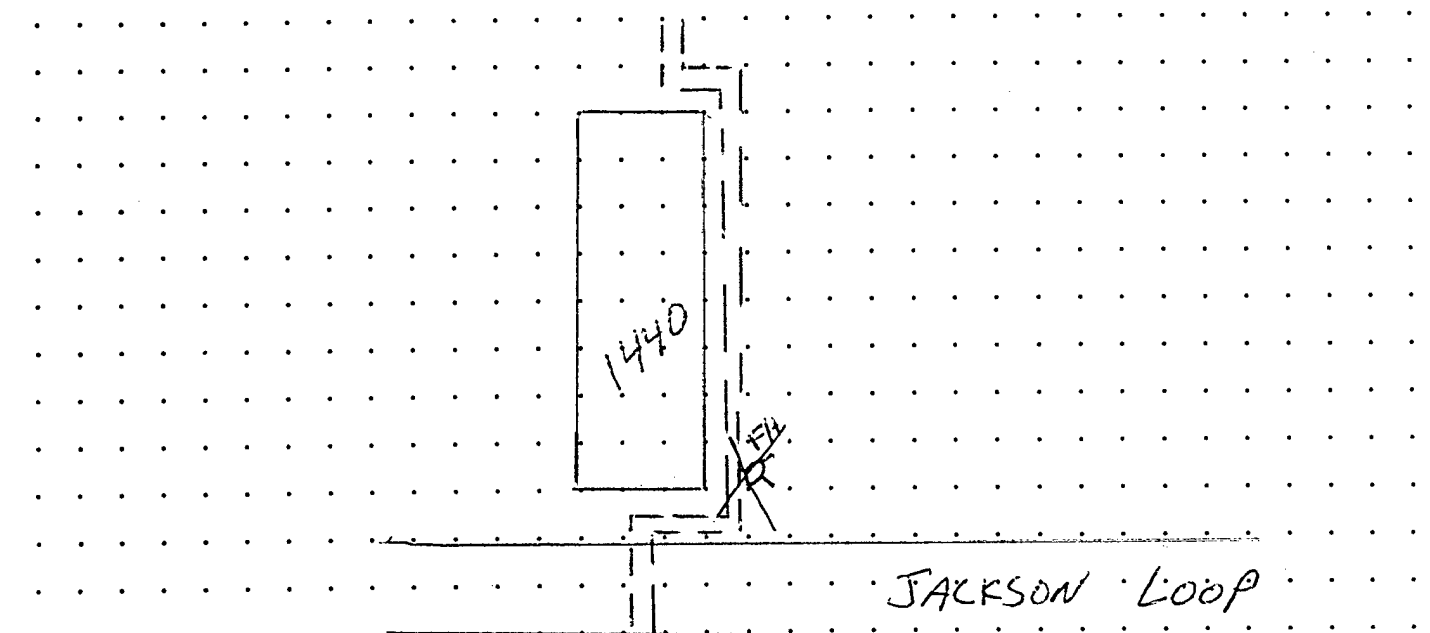
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

FINE hydrant in front of south side of
#1440 off JACKSON Loop leaking

MAP I-7

Company Representative

Daniel M. [Signature]
Heath Consultant



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Page No. 2
Date 6-21-95
Ownership Public Private Easement
Leak Indication Classification
I(C) II(B) III(A)
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Fort Belvoir District _____
City Alcotink State VA
Nearest Street Address

Building T-1426 at Fire Hydrant

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>2 gpm</u>

LEAKAGE DETECTED AT:

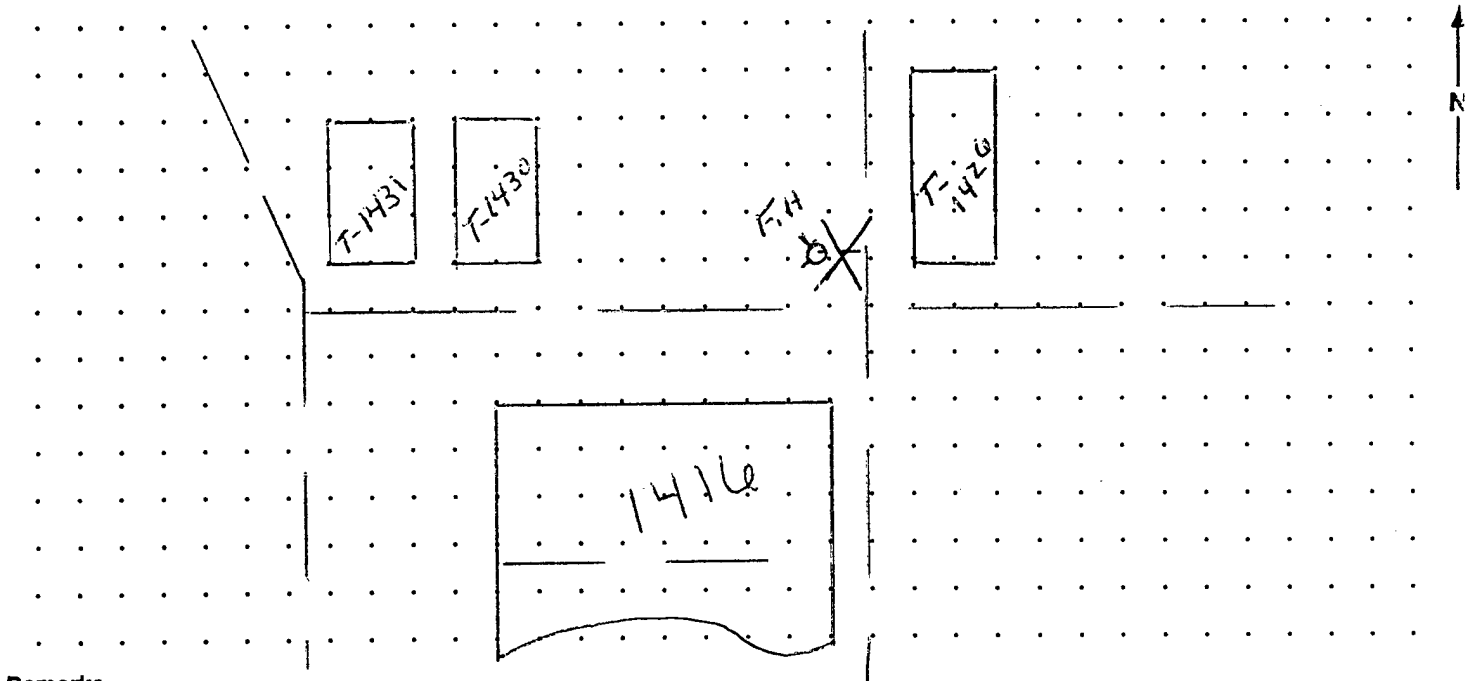
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input checked="" type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

Fire hydrant at west side of Building T-1426
Leaking

M.A.P. - I-7

Company Representative

Heath Consultant



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Page No. 3
Date 6-21-95
Ownership Public Private Easement
Leak Indication Classification
1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company System Corp/Fair Belvoir District _____
City Alcottville State VA
Nearest Street Address

Jackson Loop at Building # 1434 - valve

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>4 gpm</u>

LEAKAGE DETECTED AT:

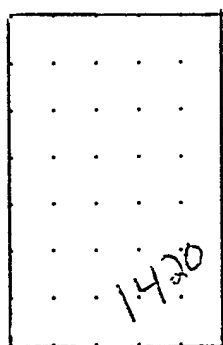
Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input checked="" type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



JACKSON Loop

1434

Remarks

VALVE CONTROLLING FLOW NORTH ON 8" LINE
RUNNING ALONG EAST SIDE OF BUILDING 1420 LEAKING. VALVE
IS OFF SOUTH SIDE OF JACKSON Loop AT NORTHEAST CORNER
of BUILDING #1434

MAP I-8

Daniel Miller
Heath Consultant

Company Representative



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

Page No. 4
Date 4-22-95
Ownership Public Private Easement
Leak Indication Classification
1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcomp / Fort Belvoir District _____
City Alcotine State VA
Nearest Street Address

HALL Road at Bldg #1464 - FINE hydrant

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>2 gpm</u>

LEAKAGE DETECTED AT:

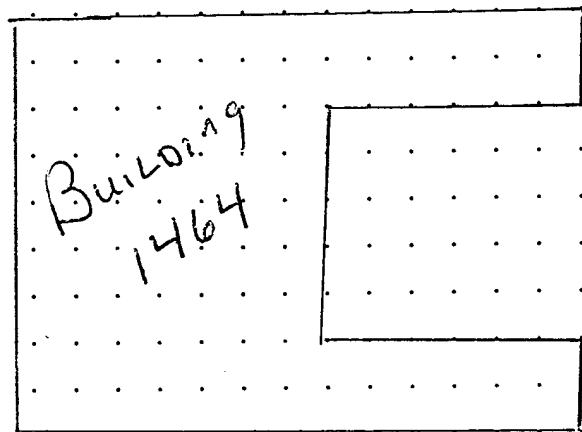
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

FINE hydrant on EAST SIDE of Building #1464
Along HALL Road leaking

MAP I-8

Company Representative

David M. [Signature]
Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

Page No. 5

Date 6-22-95

Ownership Public Private Easement

Leak Indication Classification
1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcomp / Four Belvoir District _____
City ACCLINK State VA
Nearest Street Address

GUNSTON Rd AT FIFTH ST

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>1 gpm</u>

LEAKAGE DETECTED AT:

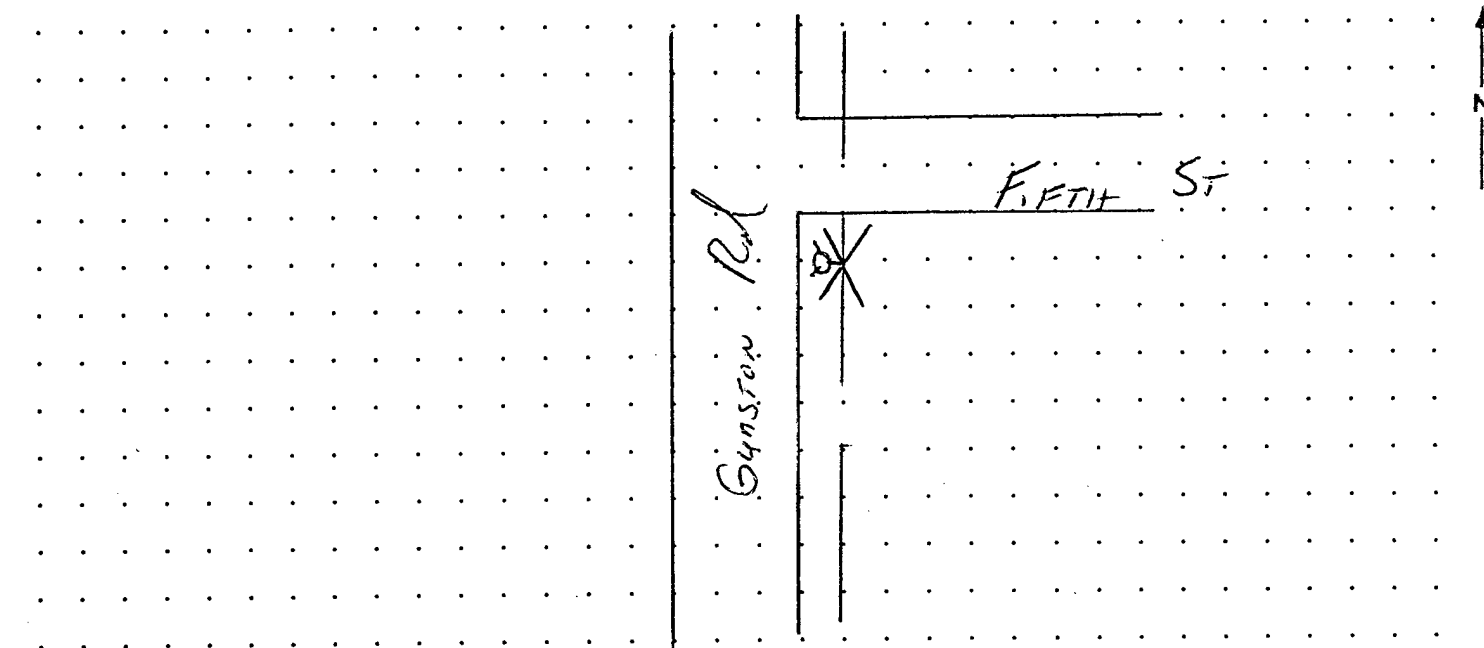
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

Fire hydrant at intersection of Gunston Rd
& FIFTH ST LEAKING

I-8

Company Representative

Heath Consultant



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Page No. 6
Date 6-22-95
Ownership Public Private Easement
Leak Indication Classification
1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Fort Belvoir District _____
City ACCAHINK State VA
Nearest Street Address

Third St EAST of Gunston Rd

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>4 gpm</u>

LEAKAGE DETECTED AT:

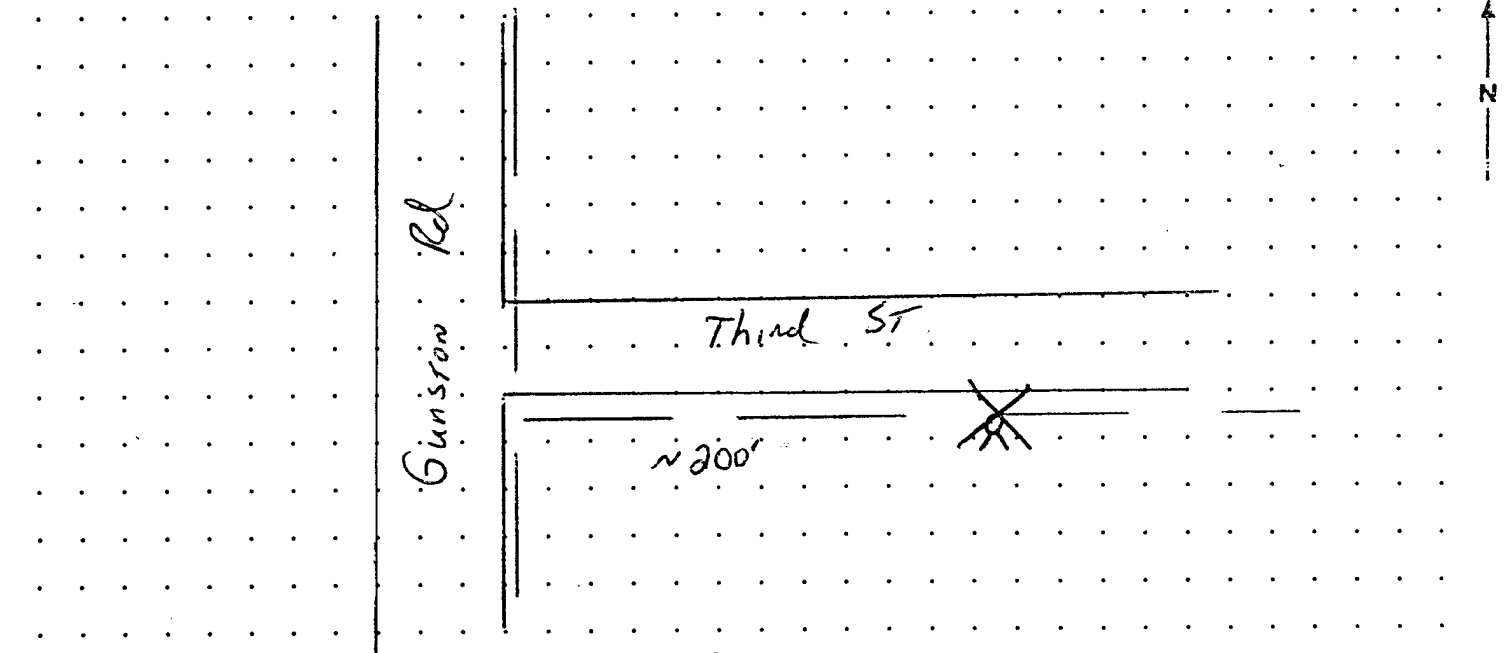
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks Fire hydrant on Third St approx 200 FEET
EAST of INT of Third St + Gunston Rd LEAKING

MAP- H-8

Company Representative

Donn O'Malley
Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

Page No. 7
Date 6-22-95
Ownership Public Private Easement
Leak Indication Classification
1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Fort Belvoir District _____
City ACOTWIL State VA
Nearest Street Address

Third St west of CHAPEK ST

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>4 gpm</u>

LEAKAGE DETECTED AT:

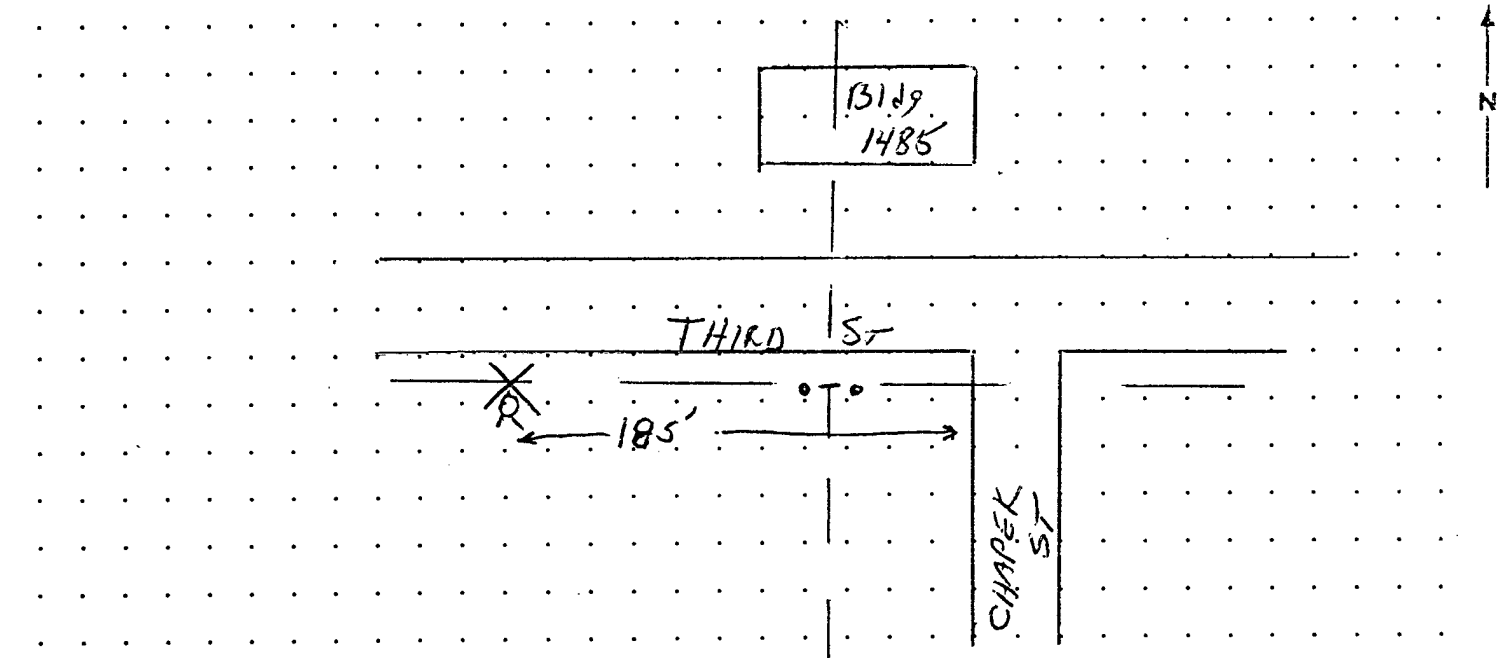
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

Fire hydrant on Third St approx 185' west
of int of THIRD ST & CHAPEK ST LEAKING

MAP H-8

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

Page No. 8
Date 6-23-95
Ownership Public Private Easement
Leak Indication Classification
1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Font Belvoir District _____
City Accotink State VA
Nearest Street Address

GUSTON Road AT #1195 - Fire hydrant

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>1 gpm</u>

LEAKAGE DETECTED AT:

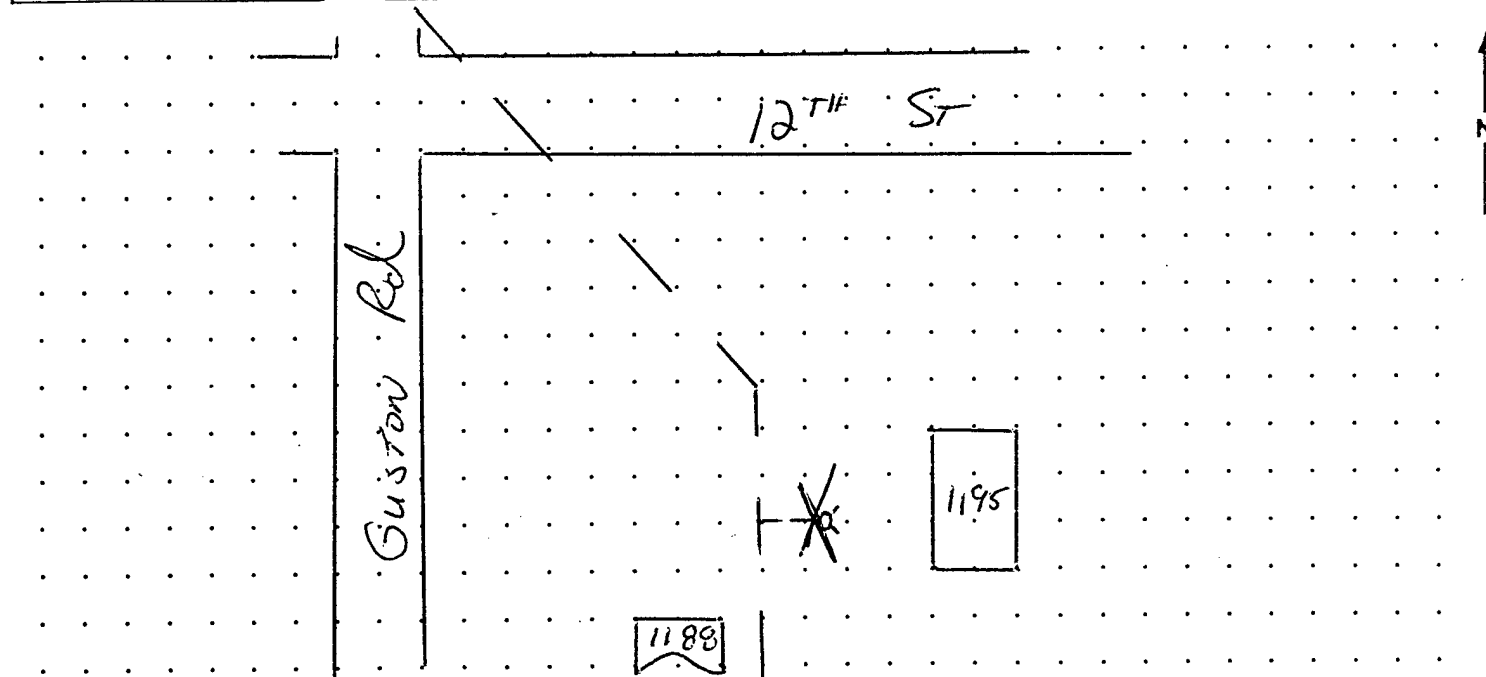
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

Fire hydrant in grass in front of
Building #1195 leaking

MAP J-8

Donall Munn
Heath Consultant

Company Representative



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

Page No. 9
Date 6-26-85
Ownership Public Private Easement
Leak Indication Classification 2
1 (Circle One) 3

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcomp / Fr Belvoir District _____
City ACCLINE State VA
Nearest Street Address _____

Gunston Rd at # S-1147

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

LEAKAGE DETECTED AT:

Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

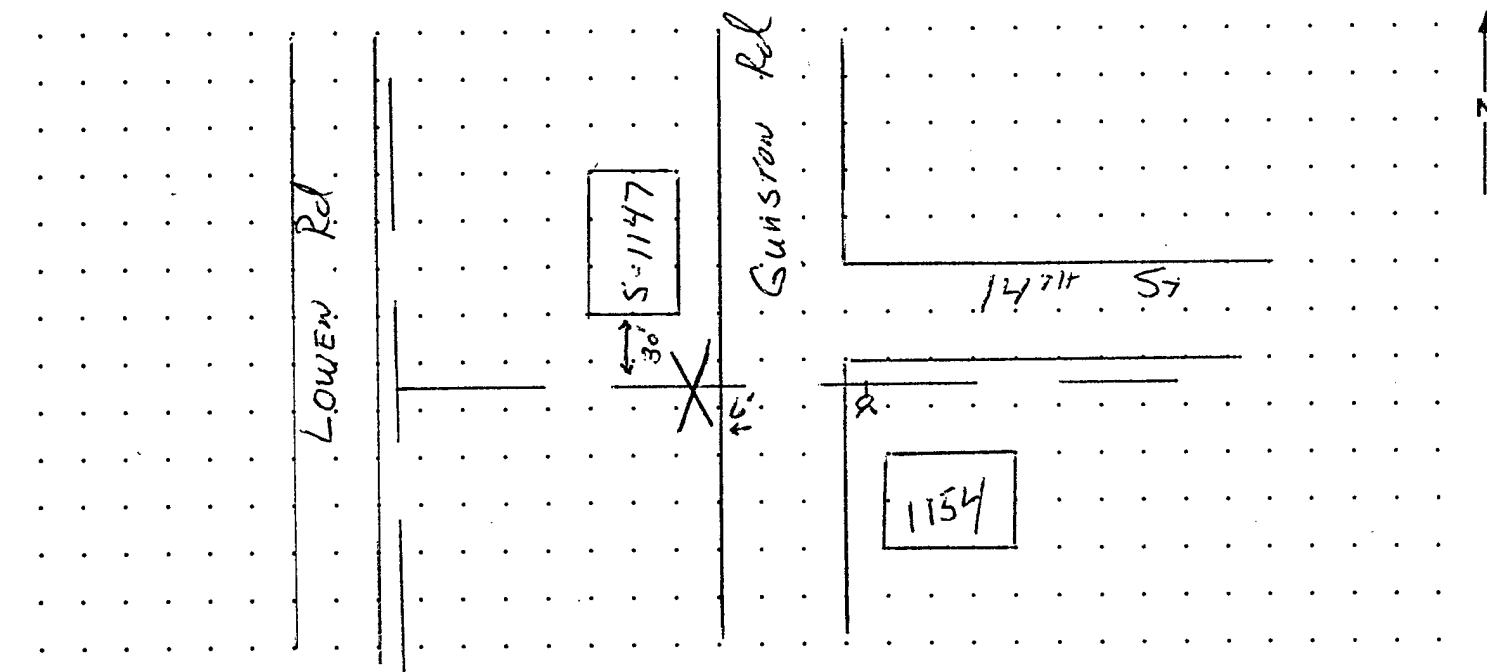
Main	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>10 gpm</u>



Remarks LEAK on 8" main off 12" main. LEAK is
Behind CURBLINE south of Building # S-1147. LEAK
is approx 30' south of south Building Wall of # S-1147
and approx 10' west of west curb line of Gunston Rd
across Road from int. of Gunston Rd + 14th St

MAP J-8

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

Page No. 10
Date 6-26-95
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Leak Indication Classification
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(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Ft Belvoir District _____
City ACCLOTINK State VA
Nearest Street Address

Belvoir Road Behind #1000

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>3 gpm</u>

LEAKAGE DETECTED AT:

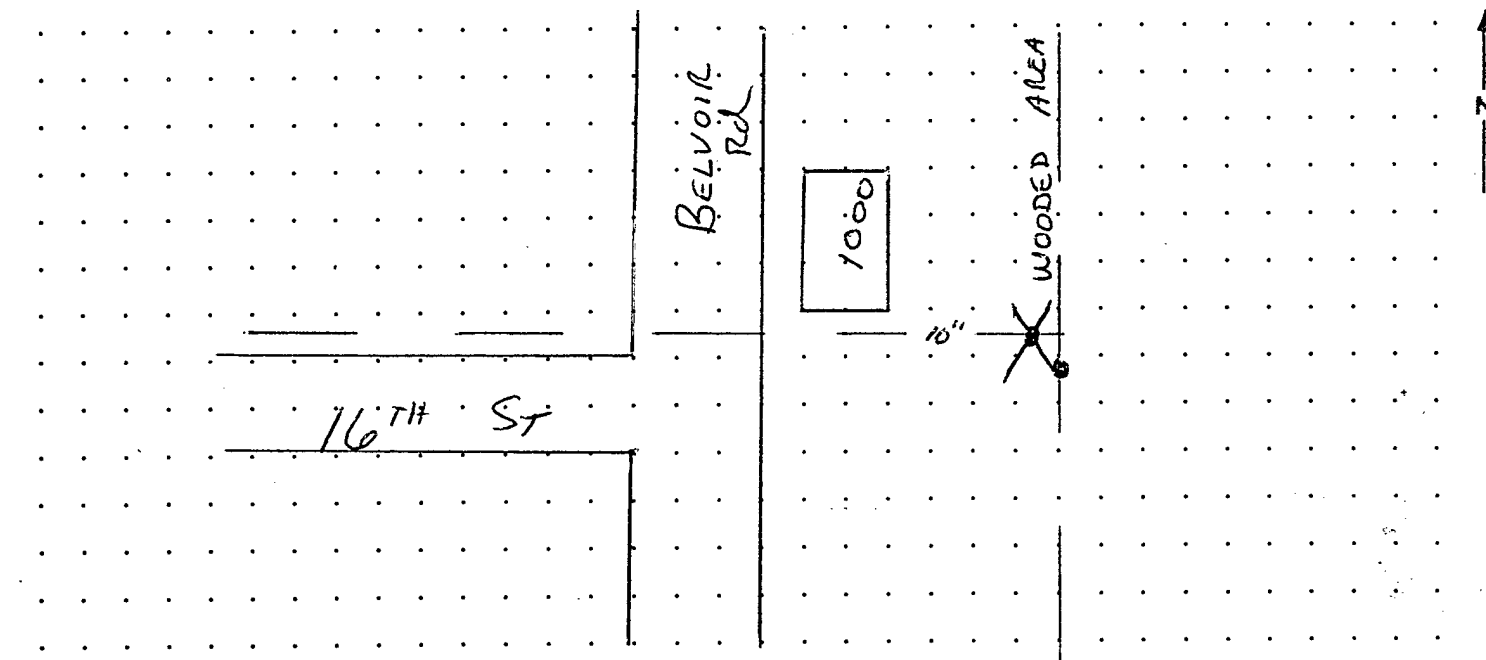
Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

LEAK APPEARS to be on MAIN, AT OR NEAR
VALVE (possible flange) on ~~water~~ line running WEST along
side of Building #1000. LEAK & VALVES ARE IN WOODED AREA
Behind Building #1000.

MAP J-9

Company Representative

Heath Consultant



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LEAKAGE CONTROL REPORT WATER SURVEY

Company System comp / Font Belvoir District _____
City ALLOTINK State VA
Nearest Street Address

12th ST AT #1017 (BARDEN School)

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>2 gpm</u>

LEAKAGE DETECTED AT:

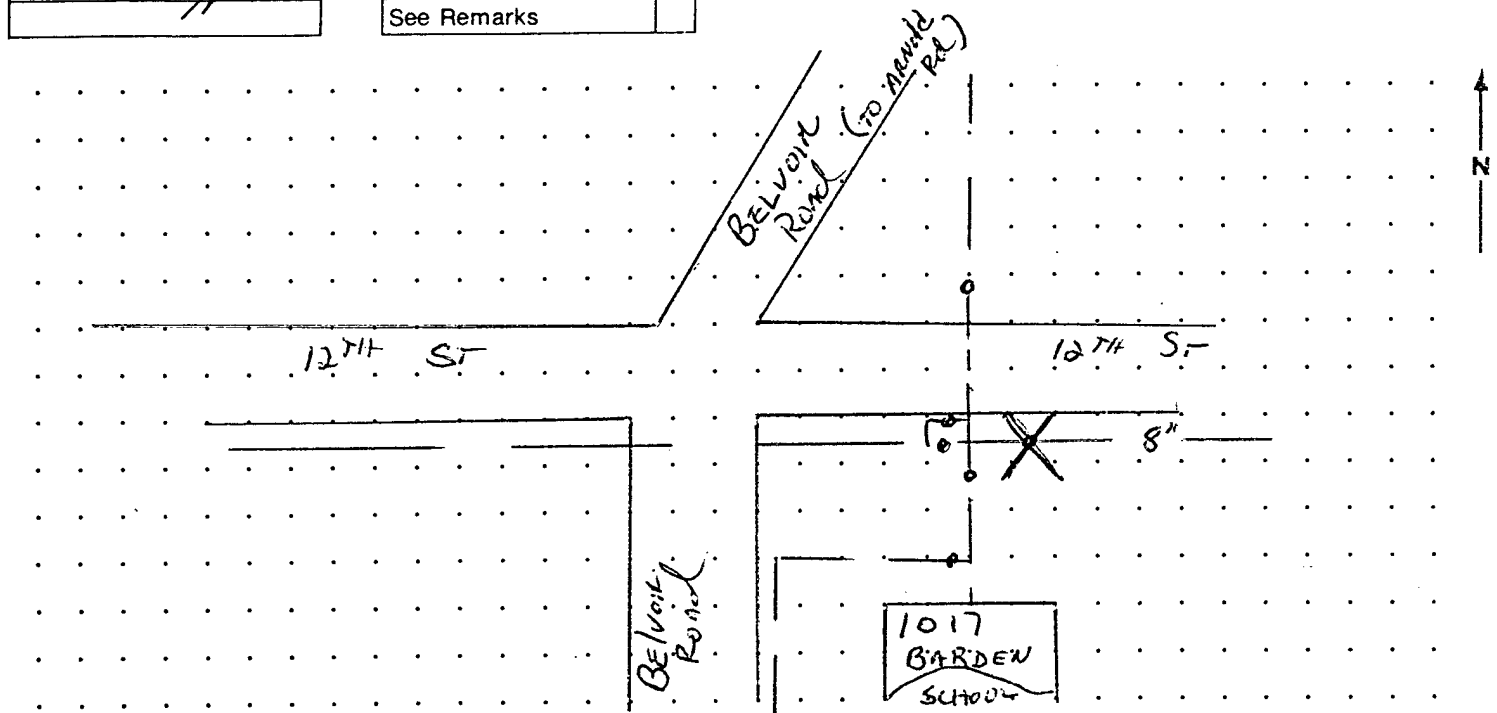
Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input checked="" type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

8" valve controlling flow EAST on 12th ST
from valve group along 12th ST in front of #1017
(BARDEN School) leaking - WATER SURFACING

MAR J-9

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

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Ownership Public Private Easement

Leak Indication Classification

1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp/Fort Belvoir District _____

City Accotink State VA

Nearest Street Address

Arnold Road south of 9th St

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

LEAKAGE DETECTED AT:

Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>10 gpm</u>

Remarks

LEAK appears to be 8" main along EAST
SHOULDER of Arnold St 161' south of main valve
on Arnold Rd at int of Arnold Rd + 9th St

MAP I-8

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

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LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp/Tr Belvoir District _____
City Accotink State Va
Nearest Street Address

MEERES Road at #1741

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>1 gpm</u>

LEAKAGE DETECTED AT:

Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
See Remarks	<input checked="" type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input type="checkbox"/>
Other <u>manhole</u>	<input checked="" type="checkbox"/>

1741
CHENEY
School

AIR
RELEASE

MEERES Rd

Knight St

Remarks

LEAK on 2" TAP FOR AIR RELEASE VALVE on 16" IN MANHOLE IN FRONT of #1741 MEERES Rd (CHENEY School)

* Air release NOT ATTACHED to 2" TAP

MAP-F-8

NO MAP of this AREA

[Signature]

Company Representative

Heath Consultant



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LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Ft Belvoir District _____
City ACOTINK State VA
Nearest Street Address _____

12" MAIN VALVE AT Building # 1003

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>2 gpm</u>

LEAKAGE DETECTED AT:

Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input checked="" type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

LANEFITT
Loop

AIR
RELIEF VALVE

1003

YOUTH
Activity
Services

Remarks

12" MAIN VALVE IN Front of Building #1003
- Youth Activity Services - LEAKING

WATER SURFACING

MAP J-9

Company Representative

Heath Consultant



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9030 Monroe Road, Houston, TX 77061

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LEAKAGE CONTROL REPORT WATER SURVEY

Company System Corp / Ft Belvoir District _____
City ACLOTINE State VA
Nearest Street Address

HURLEY Road AT # 805

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>3 gpm</u>

LEAKAGE DETECTED AT:

Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

← 12TH ST →

805

HURLEY Road

Remarks

FIRE hydrant on Hurley Road NEAR WEST
SIDE OF Building # 805 LEAKING

MAP - J-9

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
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Leak Indication Classification
1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Ft Belvoir District _____
City ACCOFINK State VA
Nearest Street Address

16TH ST AT # 740

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>25 gpm</u>

LEAKAGE DETECTED AT:

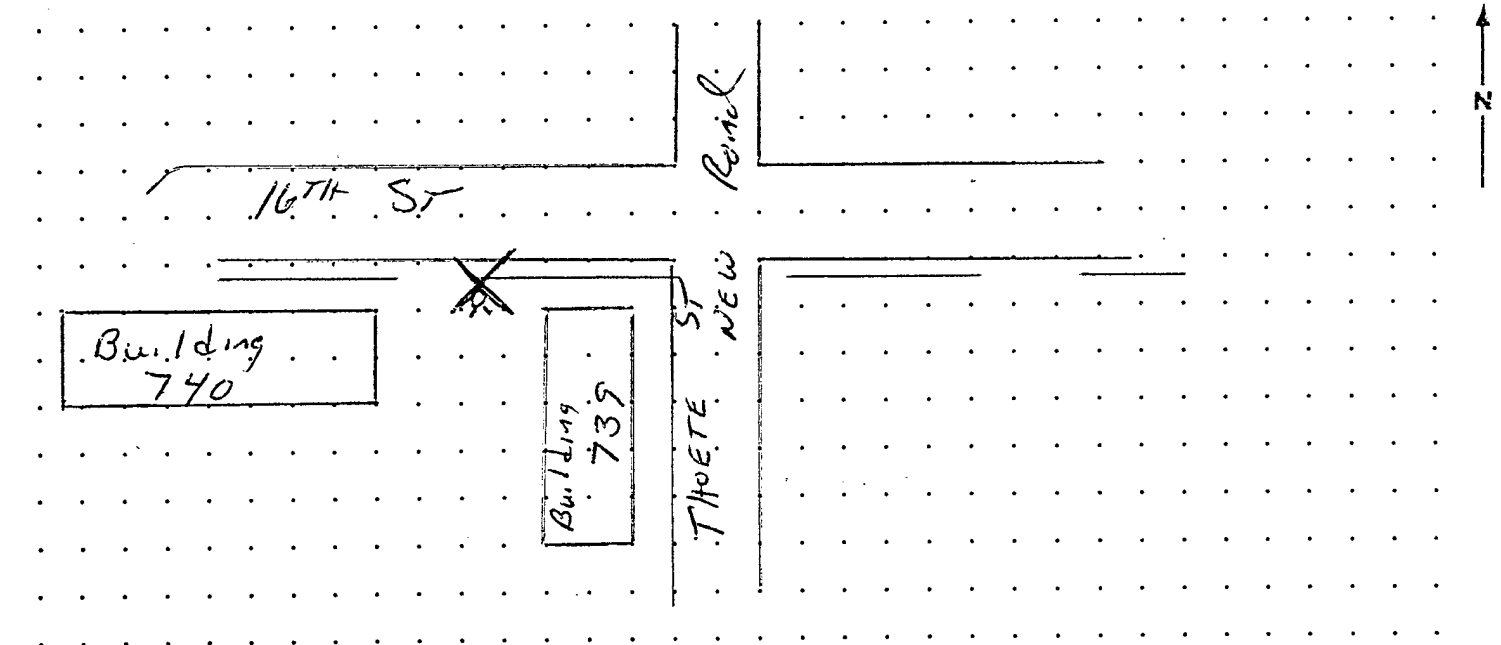
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main <u>Hyd LAT.</u>	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

LEAK APPEARS to be AT FIRE hydrant, possibly had
LATERAL AT FIRE hyd on 16TH ST Between Buildings # 739
& 740

MAP K-8

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

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Ownership Public Private Easement

Leak Indication Classification

1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Ft Belvoir District _____

City ACCO TINK State VA

Nearest Street Address

16TH ST West of Dalrymple ST

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>1 gpm</u>

LEAKAGE DETECTED AT:

Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Remarks

Fine hydrant on 16TH ST Between Dalrymple ST &
THOETE ST leaking

MAP K-8

Company Representative

Heath Consultant



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9030 Monroe Road, Houston, TX 77061

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Ownership Public Private Easement

Leak Indication Classification
1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Ft. Belvoir District _____
City ACCOLINE State VA
Nearest Street Address _____

LYMAN Loop at FIRE hydr

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

LEAKAGE DETECTED AT:

Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

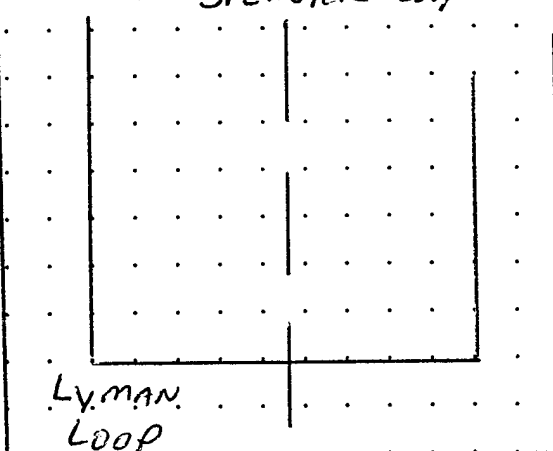
COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input type="checkbox"/>
Other	<input checked="" type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>15 gpm</u>

← SPENGLER Loop →



Remarks

Fire hydrant Body at FIRE hydrant on
Back side of Lyman Loop cracked - Fire hydrant
has 1 1/2" crack in Body

MAP L-8

David M. [Signature]
Heath Consultant

Company Representative



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

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Ownership Public Private Easement

Leak Indication Classification

1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Ft Belvoir District _____
City Accutink State VA
Nearest Street Address

SPENGLER loop at 21st ST

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

LEAKAGE DETECTED AT:

Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>5 gpm</u>

Remarks

LEAK on 6" main running on west side of
Spengler loop at 21st ST - LEAK SURFACING - LEAK
is ~ 25' off 21st ST into soil

MAP K-8

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

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Leak Indication Classification

1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp/Fr Belvoir District _____
City ACCOLINE State VA
Nearest Street Address _____

21ST STREET AT REAR OF #165

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

LEAKAGE DETECTED AT:

Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

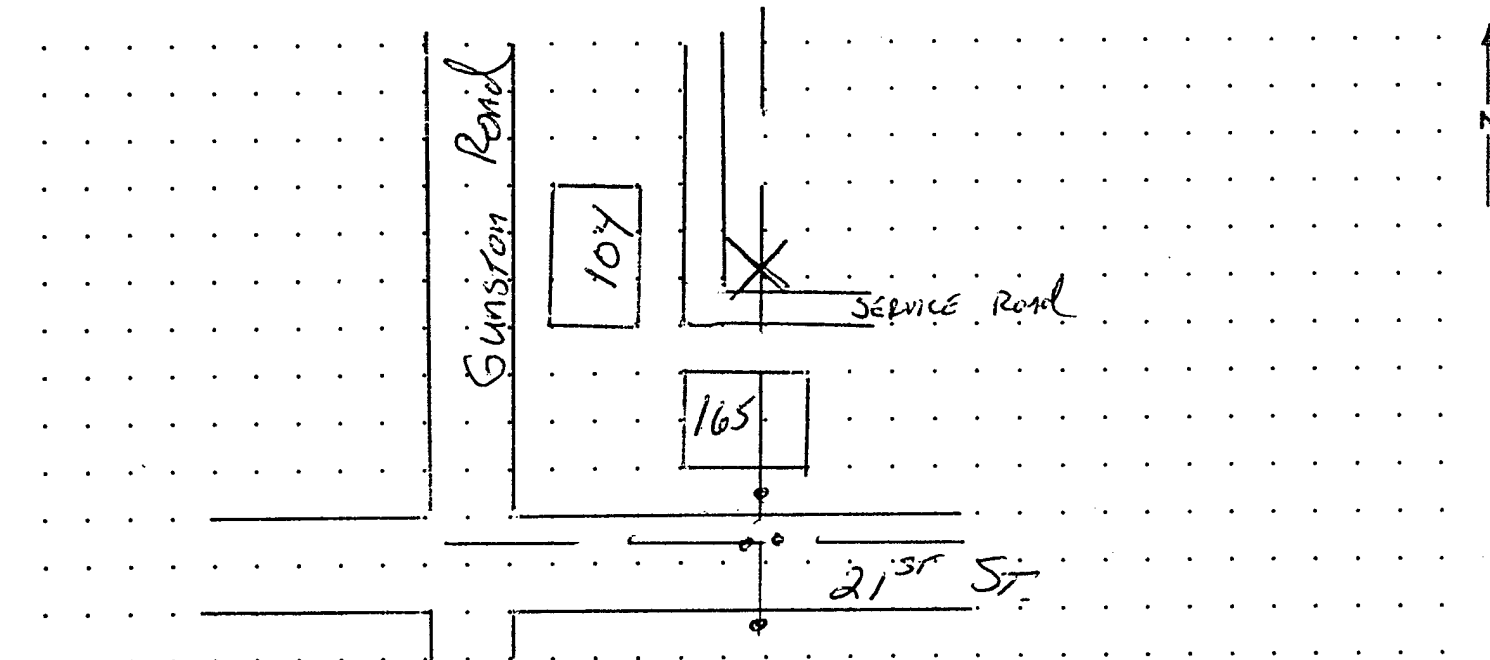
Main	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>20 gpm</u>



Remarks

LEAK APPEARS to be on MAIN along north
SIDE of SERVICE ROAD behind #165 21ST ST

MAP- K-9

Company Representative

Heath Consultant



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Leak Indication Classification
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LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp/Ft Belvoir District _____
City ACCO TINK State VA
Nearest Street Address

ROSSELL Loop at 21ST ST

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>2 gpm</u>

LEAKAGE DETECTED AT:

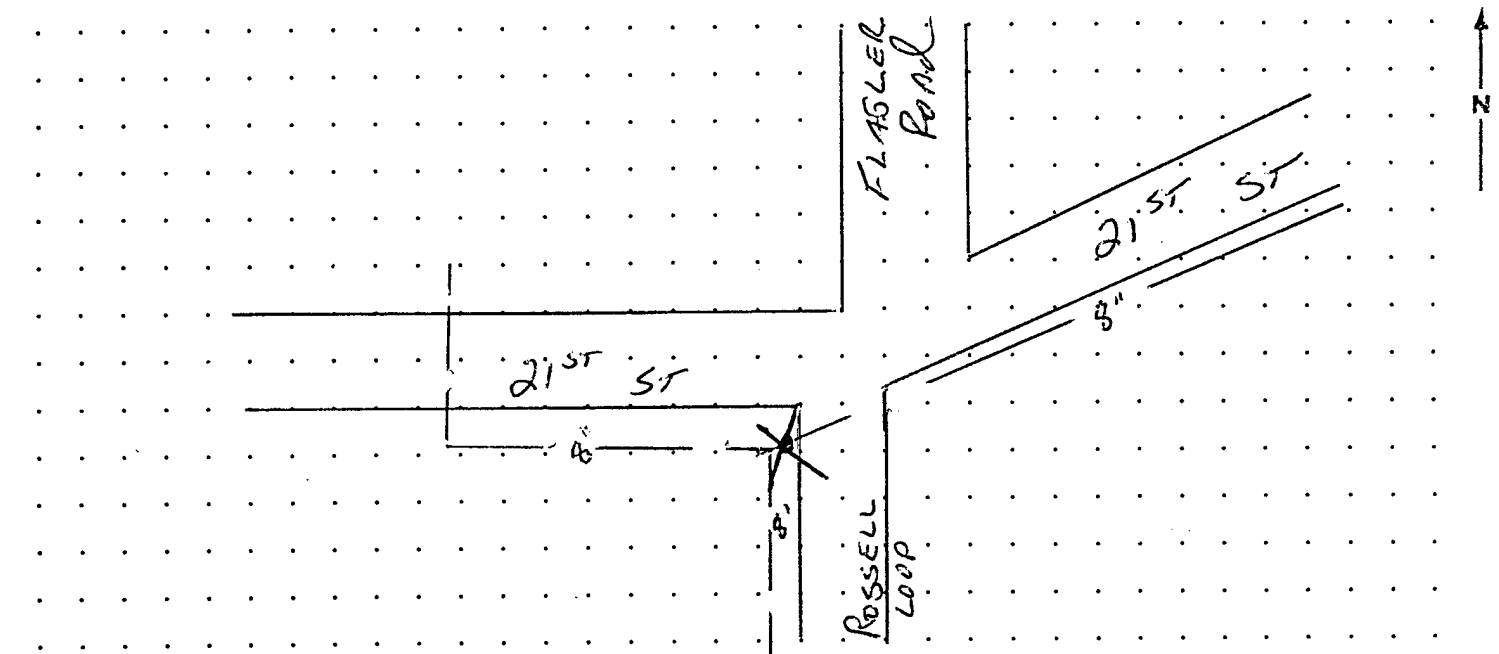
Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input checked="" type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input checked="" type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

8" MAIN VALVE AT SE. CORNER of int of
ROSELL Loop & 21ST ST. WATER SURFACING

Map K-9

David C. Mun
Heath Consultant

Company Representative



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

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Leak Indication Classification
1 2 3
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LEAKAGE CONTROL REPORT WATER SURVEY

Company System Corp / Ft Belvoir District _____
City Accotink State VA
Nearest Street Address

18TH ST AT REAR of #130

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>3 gpm</u>

LEAKAGE DETECTED AT:

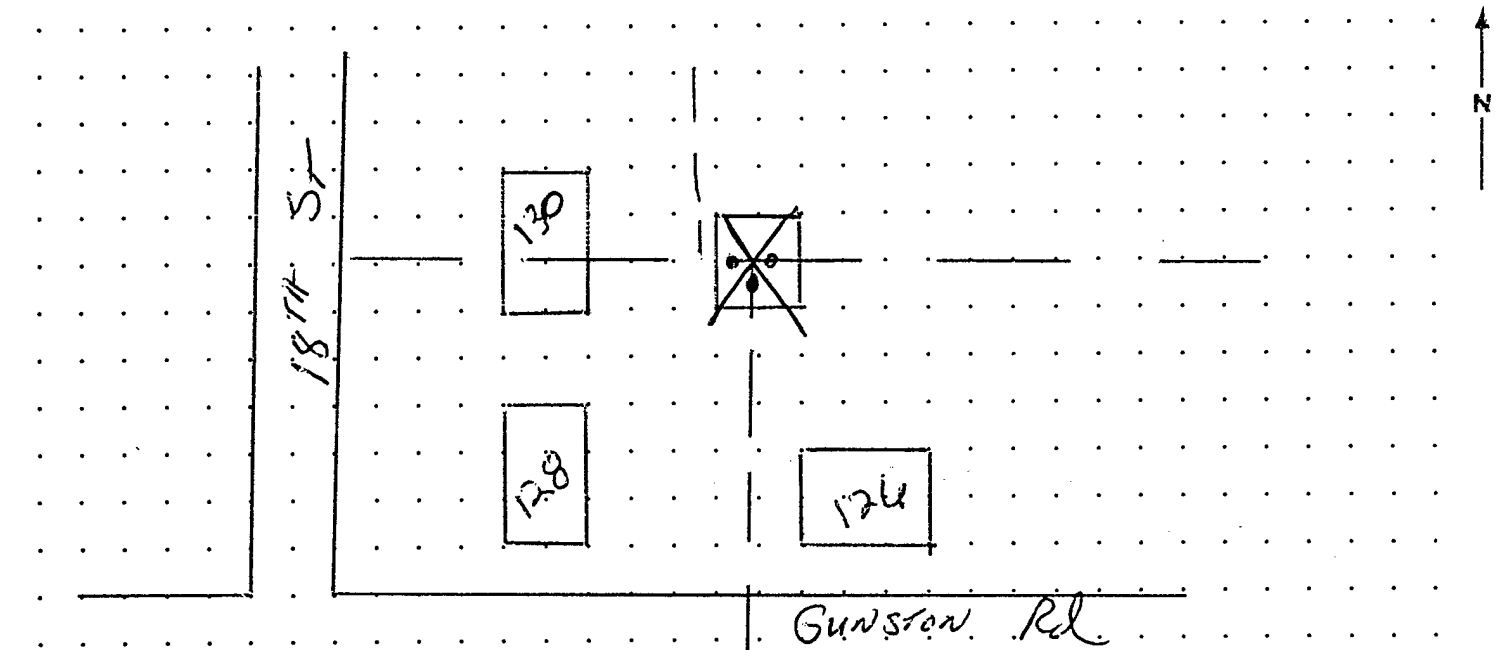
Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve <u>in pit</u>	<input checked="" type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input type="checkbox"/>
Other <u>PIT</u>	<input checked="" type="checkbox"/>



Remarks LEAK appears to be on valve in value pit at
REAR of #130 18TH ST. Pit is full of water
so exactly which valve is leaking cannot be determined

MAP-K-8

Daniel M. [Signature]

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

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Ownership Public Private Easement

Leak Indication Classification

1

2

3

(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemloop / IT Belvoir District _____

City Accotink State VA

Nearest Street Address

GOETHALS Road AT BEAUREGARD Rd

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>1 gpm</u>

LEAKAGE DETECTED AT:

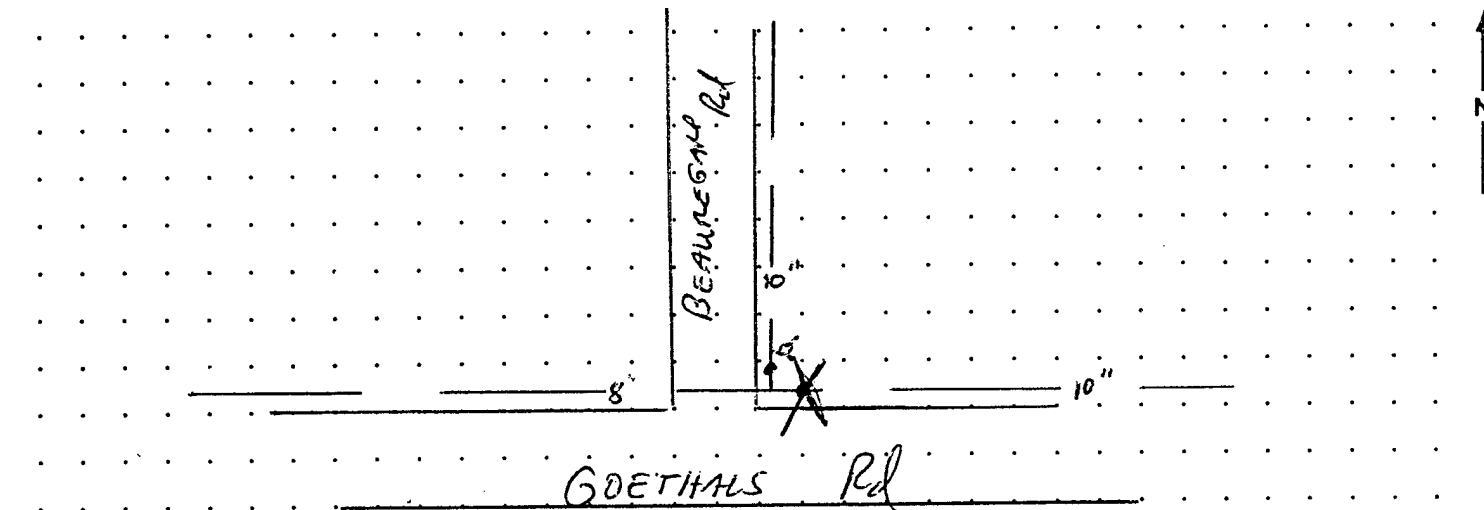
Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input checked="" type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

10" MAIN VALVE controlling water flow EAST
ON GOETHALS Road FROM INT WITH BEAUREGARD Rd
leaking

main G-8

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

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Leak Indication Classification
1 2 3
(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Ft Belvoir District _____
City Accotink State VA
Nearest Street Address

IRY Road AT #1970

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>3.9 gpm</u>

LEAKAGE DETECTED AT:

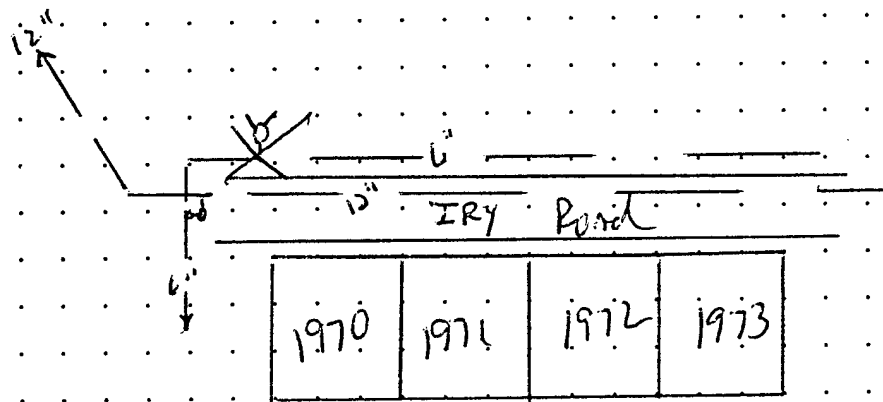
Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

Fire hydrant AT REAR of #1970 IRY Road
LEAKING

A POSSIBLE SECOND LEAK HERE - maybe 12" x 6"
REAR TIE IN. TOO MUCH MUD, WATER & CAT TAILS
TO LOCATE EXACT SOURCE of surfacing
water

Company Representative

Heath Consultant

MAP H-7



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

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Ownership Public Private Easement
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(Circle One)

LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp / Fr Belvoir District _____
City Accotink State VA
Nearest Street Address _____

ERY Rd At #1972

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>2 gpm</u>

LEAKAGE DETECTED AT:

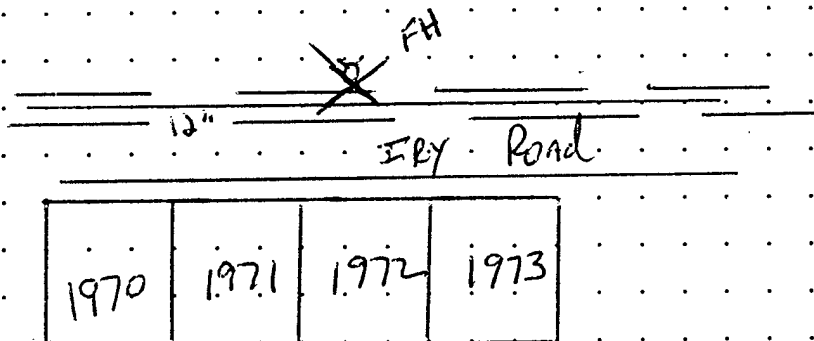
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

Fire hydrant across ERY Road from Building #1972
leaking

MAP H-7

Company Representative

Heath Consultant



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9030 Monroe Road, Houston, TX 77061

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LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcomp/Ft Belvoir District _____
City ACLOTINK State VA
Nearest Street Address

ABBOT Road AT # 2115

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>1 gpm</u>

LEAKAGE DETECTED AT:

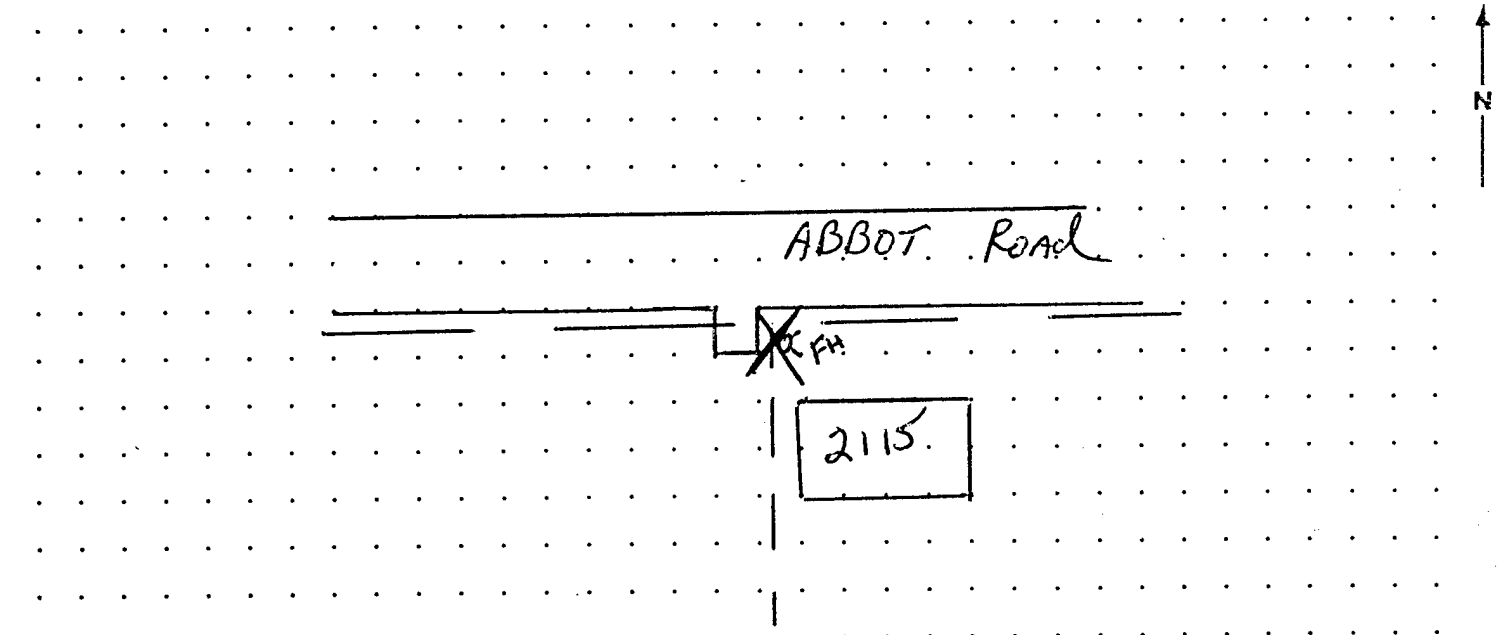
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks Fine hydrant AT N.W corner of Building
2115 (NORTH HEALTH CLINIC) on ABBOT Road leaking

MAP G-7

David C. Miller
Heath Consultant

Company Representative



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LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemwarp/Ft Belvom District _____
City Accotink State VA
Nearest Street Address _____

16th St at Building # 193

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>10 gpm</u>

LEAKAGE DETECTED AT:

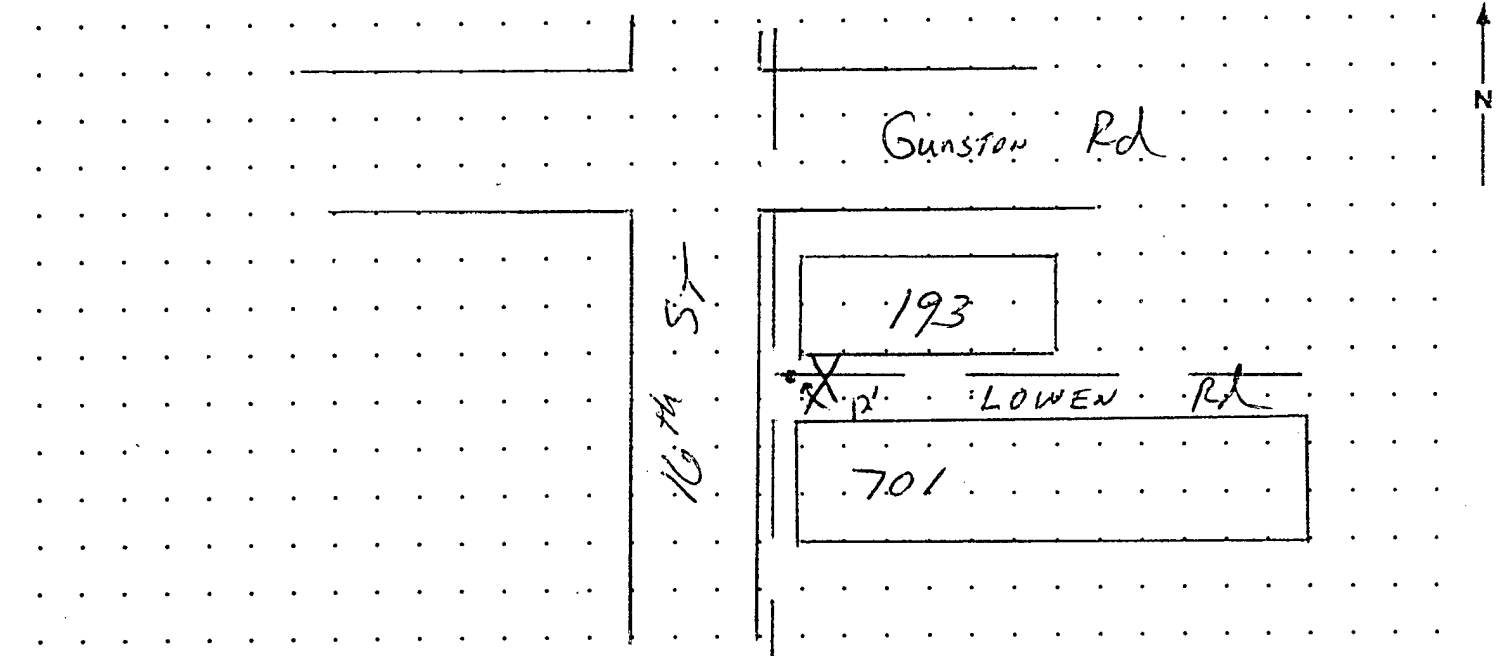
Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input checked="" type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

LEAK APPEARS to be on 6" MAIN RUNNING
EAST FROM 16th St Between Buildings # 193 & 701.
LEAK IS APPROX 12' EAST OF 6" MAIN VALVE AT INT
OF 16th St & Access Road Between Buildings (LOWEN Rd)
193 & 701

[Signature]

MAP K-8

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
9030 Monroe Road, Houston, TX 77061

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LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcoap / Ft Belvair District _____
City Accotink State VA
Nearest Street Address

Theote Rd NEAR S-628

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>100 gpm</u>

LEAKAGE DETECTED AT:

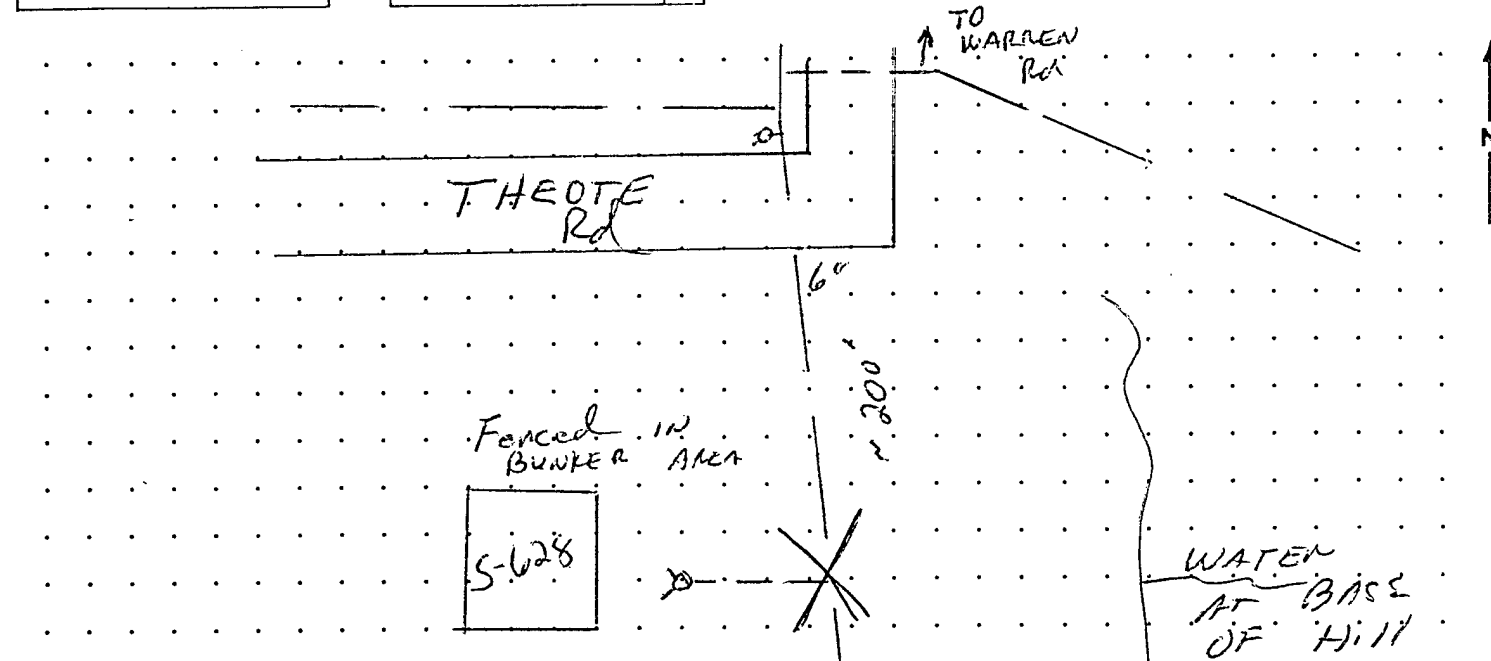
Main Valve	<input checked="" type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



Remarks

LEAK APPEARS to be on 6" MAIN IN
right of way off of THEOTE ROAD. LEAK IS IN
AREA of FIRE hydrant "T" NEAR BUILDING S-628

MAP L-8

Company Representative

Heath Consultant



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9030 Monroe Road, Houston, TX 77061

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LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcorp/Ft Belvoir District _____
City Accotink State VA
Blot Nearest Street Address
TOTTEN Rd AT #338

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>1 gpm</u>

LEAKAGE DETECTED AT:

Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main	<input type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input checked="" type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Remarks Fire Hydrant across TOTEN Road from BUILDING
#338 LEAKING

MAR M-9

Company Representative

Heath Consultant



HEATH CONSULTANTS INCORPORATED
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LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcomp / Ft Belvoir District _____
City ACCOINE State VA
Nearest Street Address _____

DAVISON Airfield to Building # 1357

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

LEAKAGE DETECTED AT:

Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input checked="" type="checkbox"/>
Hydrant	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

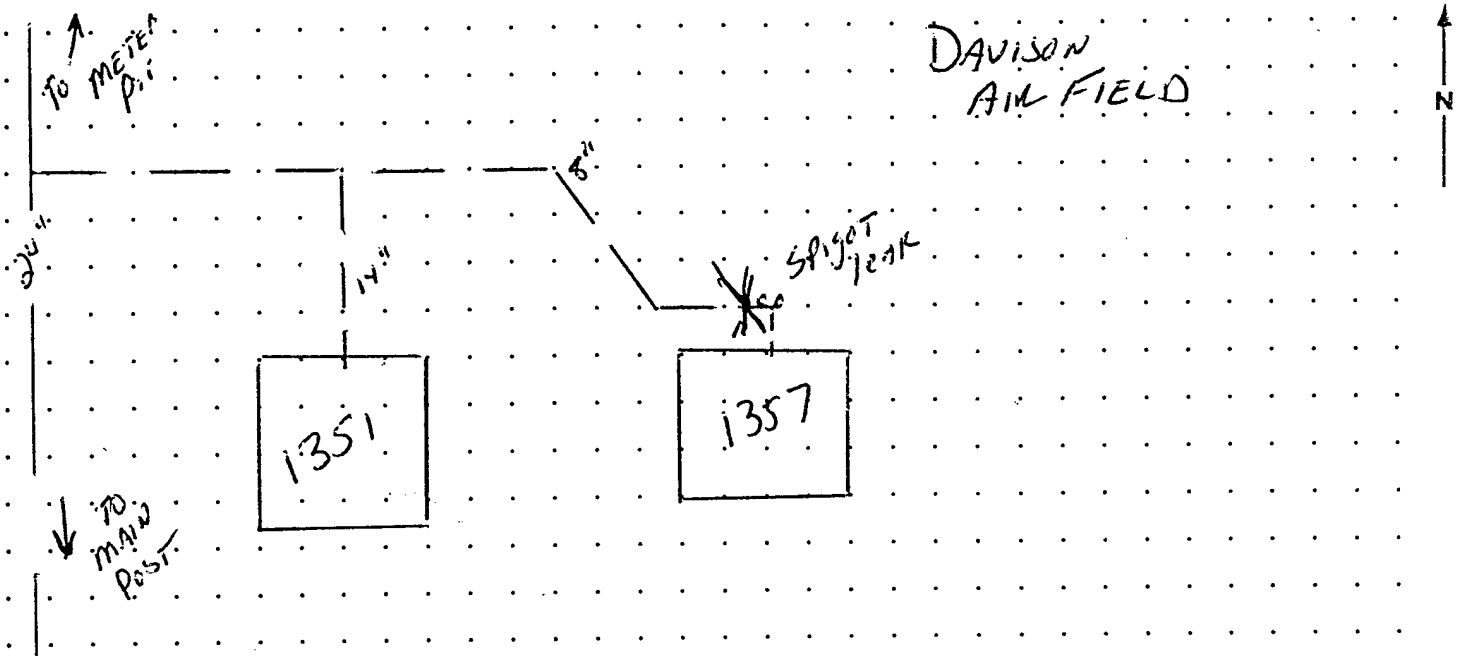
Main	<input type="checkbox"/>
Service	<input checked="" type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>1 gpm</u>



Remarks OUTSIDE YARD SPIGOT LEAKING AT BASE
WATER SURFACING

G-5

Donell C. Miller

Company Representative

Heath Consultant



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9030 Monroe Road, Houston, TX 77061

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LEAKAGE CONTROL REPORT WATER SURVEY

Company Systemcomp / Fr Belvair District _____
City ACCOITIN State VA
Nearest Street Address
Davidson Airfield At # 1351

INDICATION OF LEAK

Sonic	<input checked="" type="checkbox"/>
Surfaced Water	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

ESTIMATION OF LEAKAGE:

<u>1 gpm</u>

LEAKAGE DETECTED AT:

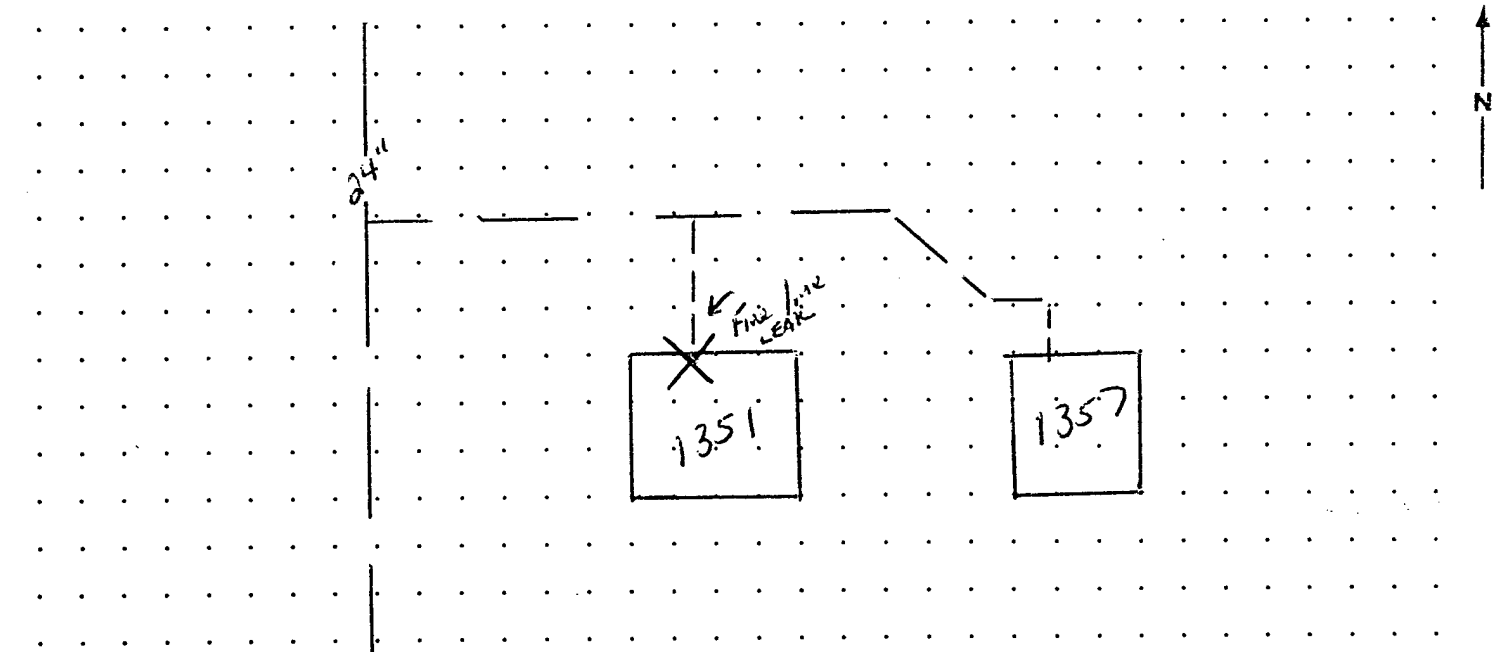
Main Valve	<input type="checkbox"/>
Curb Valve	<input type="checkbox"/>
Meter Box	<input type="checkbox"/>
Selected Test	<input checked="" type="checkbox"/>
Hydrant	<input type="checkbox"/>
	<input type="checkbox"/>
See Remarks	<input type="checkbox"/>

LEAK APPEARS TO BE ON:

Main <u>Fire line</u>	<input checked="" type="checkbox"/>
Service	<input type="checkbox"/>
Joint Connection	<input type="checkbox"/>
Hydrant	<input type="checkbox"/>
Valve	<input type="checkbox"/>
Misc.	<input type="checkbox"/>

COVER

Concrete	<input type="checkbox"/>
Asphalt	<input type="checkbox"/>
Brick	<input type="checkbox"/>
Gravel	<input type="checkbox"/>
Soil	<input type="checkbox"/>
Other	<input checked="" type="checkbox"/>



Remarks

Check valve on sprinkler line in Building
1351 leaking through drain line. Water coming out
drain line outside building

MAP 6-5

Donald C. Muey

Company Representative

Heath Consultant